IN THE CLAIMS

1-137. (Cancelled)

138. (New) An isolated nucleic acid molecule encoding a bitter taste receptor selected from the group consisting of:

(i) an isolated nucleic sequence that encodes a bitter taste receptor having the sequence contained in SEQ ID No.7 or a fragment thereof that encodes a functional bitter taste receptor;

(ii) an isolated nucleic sequence that encodes the bitter taste receptor polypeptide contained in SEQ ID No: 8;

(iii) an isolated nucleic acid sequence that hybridizes to the nucleic acid sequence contained in SEQ ID No: 7 under stringent hybridization conditions; and

(iv) an isolated nucleic acid sequence that encodes a bitter taste receptor that possesses at least 90% sequence identity to SEQ ID No: 7 wherein sequence identity is determined according to any of the BLAST, BLAST 2.0 or PILEUP algorithms.

139. (New) The isolated nucleic acid sequence having SEQ ID No: 7.

140. (New) An isolated nucleic acid sequence which encodes the polypeptide contained in SEQ ID No: 8.

141. (New) The isolated nucleic acid sequence of claim 138, wherein said nucleic acid sequence stringently hybridizes to the nucleic acid sequence contained in SEQ ID No: 7, wherein stringent hybridization conditions are 50% formamide, 5xSSC, and incubation at 42°, C or 5xSCC, 1% SDS, incubation at

65° C, with wash in 0.2xSSC, 0.1% SDS at 65° C, and wherein sold hybridization and wash steps are each effected for at least one minute.

142. (New) An isolated nucleic acid sequence encoding a bitter taste receptor which possesses at least 90% sequence identity to the polypeptide contained in SEQ ID No: 8, wherein sequence identity is determined by any one of the BLAST, BLAST 2.0 or PILEUP algorithms.

143. (New) An isolated nucleic acid sequence encoding a bitter taste receptor which possesses at least 95% sequence identity to the polypeptide contained in SEQ ID No. 8, wherein sequence identity is determined by any one of the BLAST, BLAST 2.0 or PILEUP algorithms.

144. (New) An isolated nucleic acid sequence encoding a bitter taste receptor that possesses at least 96% sequence identity to the polypeptide contained in SEQ ID No. 8, wherein sequence identity is determined by any one of the BLAST, BLAST 2.0 or PILEUP algorithms.

145. (New) An isolated nucleic acid sequence encoding a bitter taste receptor that possesses at least 97% sequence identity to the polypeptide contained in SEQ ID No. 8, wherein sequence identity is determined by any one of the BLAST, BLAST 2.0 or PILEUP algorithms.

145. (New) An isolated nucleic acid sequence encoding a bitter taste receptor that possesses at least 99% sequence identity to the polypeptide contained in SEQ ID No. 8, wherein sequence identity is determined by any of the BLAST, BLAST 2.0 or PILEUP algorithms.

146. (New) An isolated nucleic sequence according to any one of claims 138-145 which is directly or indirectly attached to a sequence that facilitates the expression and/or the translocation of the polypeptide encoded by said sequence on the surface of a cell.

147. (New) An isolated nucleic acid sequence according to any one of claims 138-145 that is operably linked to a constitutive or regulatable promotor.

147. (New) An isolated nucleic acid sequence according to any one of claims 138-145 that is attached to a nucleic acid sequence encoding a chaperone protein.

148. (New) An expression vector that comprises a nucleic acid sequence according to any one of claims 138-145.

149. (New) The expression vector or claim 148 which is a mammalian, yeast, bacterial or insect expression vector.

150. (New) A cell which is transfected or transformed with a nucleic acid sequence according to claim 138.

151. (New) The cell of claim 150 which is mammalian.

152. (New) The cell of claim 151 which is human.

153. (New) The cell of claim 150 which is yeast or insect.

154. (New) The cell of claim 150 which is an HEK-293 cell.

155. (New) The cell of claim 150 which expresses a G protein that couples with said bitter taste receptor.

156. (New) The cell of claim 155 wherein said G protein is G alpha 15.

157. (New) The isolated nucleic acid sequence according to any one of claims 138-145 which is directly or indirectly attached to a nucleic acid sequence that encodes a detectable label.